

Hemostasis and Thrombosis (HT)

The **Hemostasis and Thrombosis (HT)** Study Section reviews applications involving basic and applied aspects of the blood and vascular elements associated with hemostasis, thrombosis, and interactions with vasculature. Studies using cellular, biochemical, biophysical, immunological, genetic, pharmacological and molecular biological approaches to define normal and pathological processes are reviewed.

Specific areas covered by HT:

- Mechanisms of hemostasis: blood coagulation, structure/function of coagulation proteins, congenital and acquired bleeding disorders; hemophilia gene therapy; clinical management of bleeding disorders.
- Mechanisms of thrombolysis/fibrinolysis: fibrin structure; regulatory mediators including activators and inhibitors.
- Platelet biology: adhesion, aggregation, secretion; signal transduction mechanisms; platelet turnover; megakaryocyte biology; cytoadhesin/integrin receptor biology; platelet endothelial cell interactions, platelet disorders.
- Thrombosis: venous and arterial; rheology; inflammatory cytokines; mechanisms of atherogenesis; tissue factor expression; polymorphisms, congenital risk factors, diagnosis and pharmacologic intervention.
- Vascular biology: vessel wall interactions with the formed blood elements, including pro and anticoagulant functions, pro and anti platelet functions, and pro and antiadhesion functions; expression of tissue factor, pro and antifibrinolytic functions, matrix proteases, and soluble angiogenic factors from blood.

Shared Interests Within the IRG:

- HP should review megakaryocytopoiesis and megakaryocyte differentiation applications. HT should review applications concerned mainly with the final stages of platelet formation and platelet function.

Shared Interests Outside the IRG:

- IRGs 1 and 3 (Biological Chemistry and Macromolecular Biophysics IRG, Molecular Approaches to Cell Function and Interactions IRG): Studies examining the structure and function of membranes or proteins that address questions relative to the physiology or pathology of platelets or thrombosis, are appropriately reviewed in HT. Studies designed to address only *general principles* of protein or membrane structure or cell function, and that use blood elements primarily as a convenient source of material, should be considered under the auspices of IRGs 1 and 3.
- IRG 6 and IRG 15 (Fundamental Bioengineering and Technology Development IRG and Cardiovascular Sciences IRG): Proposals on bioengineering related specifically to devices for cardiovascular disease (stents, pacemakers, etc.) are appropriate for IRG 15. Those involving more general aspects of bioengineering could be assigned to IRG 6. Studies on the use of stents in cardiovascular injury and repair are appropriate for IRG 15. Stent-induced thrombosis is appropriate for HT.
- IRG 13 and 15: (Oncological Sciences IRG and Cardiovascular Sciences IRG): Blood vessel proliferation is a domain shared with IRG 13 and 15. HT may be appropriate when the primary focus is on soluble angiogenic factors from blood in regulating endothelial cell growth and function. Applications that focus on the biology, diagnosis and treatment of tumor angiogenesis may be assigned to IRG 13. When the primary focus is on the embryonic development of the vasculature, or the role of the vessel wall elements in non-tumor associated angiogenesis, assignment to IRG 15 may be considered.

- IRG 15: (Cardiovascular Sciences IRG): The interaction of blood elements and factors with the vasculature is an area of shared interest with IRG 15. The purview of the HT includes vessel wall interactions with blood elements such as platelets when the primary focus is on the biology of the formed blood elements or the process of thrombosis, including pro and anticoagulant functions, pro and anti platelet functions, and pro and anti-adhesion functions, expression of tissue factor, and pro and anti-fibrinolytic functions. Atherogenesis is also an area of shared interest. When the focus is on platelet cell biology and thrombosis, assignment to IRG 14 may be considered. IRG 15 may be considered for studies that focus on vascular homeostasis, endothelial biology and barrier function, including extravasation of leukocytes and lymphocytes, extracellular matrix biology, smooth muscle cell biology, regulation of vascular tone, lipoprotein biology, atherogenesis, and all areas subtended by these. Studies on the response of smooth muscle and endothelial cells to shear stress may also be appropriate for IRG 15. The effects of shear stress and hemodynamics on blood elements are appropriate for the HT.